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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/816,603	04/02/2004	Martin N. Wybourn	1505-68152	9819

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KLARQUIST SPARKMAN, LLP
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EXAMINER

SHIBUYA, MARK LANCE

ART UNIT	PAPER NUMBER
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1639

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	03/15/2007	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Office Action Summary

Application No.

10/816,603

Applicant(s)

WYBOURNE ET AL.

Examiner

Mark L. Shibuya, Ph.D.

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 12/12/06.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 4-7 and 9-15 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 4-7 and 9-15 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date _____.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____.

DETAILED ACTION

1. Application No. 10/816603: Claims 4-7 and 9-15 are pending. Claims 4-7 and 9-15 are examined.

Continued Examination Under 37 CFR 1.114

2. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 12/12/2006, has been entered.

Election/Restrictions

3. The requirement for election of species, mailed 11/19/2004, 1/10/2006, and 4/27/2006 is maintained. Applicant's elections, with traverse, of the species of polypeptide, Au, thiol, and polylysine, entered 1/24/2005; and the election without traverse of the species of mercaptoundecanoic acid, entered 2/13/2006 and 5/30/2006, are maintained.

Priority

4. This application, 10/816603, filed 4/2/2004, states that it is a continuation of 10/013,334, filed 11/5/2001, now abandoned; which is a continuation of 09/085,390, filed 5/27/1998, now abandoned; which claims benefit of 60/047,804, filed 5/27/1997.

5. Applicant's claim for the benefit of a prior-filed application under 35 U.S.C. 119(e) or under 35 U.S.C. 120, 121, or 365(c) is acknowledged. Applicant has not complied with one or more conditions for receiving the benefit of an earlier filing date under 35 U.S.C. 119(e) as follows:

The later-filed application must be an application for a patent for an invention which is also disclosed in the prior application (the parent or original nonprovisional application or provisional application). The disclosure of the invention in the parent application and in the later-filed application must be sufficient to comply with the requirements of the first paragraph of 35 U.S.C. 112. See *Transco Products, Inc. v. Performance Contracting, Inc.*, 38 F.3d 551, 32 USPQ2d 1077 (Fed. Cir. 1994).

The disclosure of the prior-filed application, Provisional Application No. 60/047,804, filed 5/27/1997, fails to provide adequate support or enablement in the manner provided by the first paragraph of 35 U.S.C. 112 for one or more claims of this application. Claim 11 is drawn to arrays comprising thiol ligands that are 11-mercaptoundeconoic acid, thiopropionic acid, and mercaptoundecanoic acid; however none of said thiol ligands find support in said Provisional application. Therefore, priority is only granted for said claim 11 to Application No. 09/085,390, filed 5/27/1998.

Withdrawn Claim Objections/Rejections

6. The following rejections are withdrawn in view of applicant's arguments and amendments to the claims:

7. Claims 4 and 11 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The rejection is necessitated by applicant's amendments to the claims.

8. Claims 4, 5, 7, 9, 10, and 13 are rejected under 35 U.S.C. 102(a,e) as being anticipated by Hainfeld et al. US Pat. No. 5,521,289 (5/96: filed 7/94). This rejection is necessitated by applicant's amendments to the claims.

9. Claims 4, 5, 7, 9, 10, 12 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hainfeld et al. US Pat. No. 5,521,289 (5/96: filed 7/94) [alone and further in view of specification in order to demonstrate inherency (e.g. of polylysine)] and Stanbro, US 5,082,627.

10. Claims 1-3, 6, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hainfeld et al. US Pat. No. 5,521,289 (5/96: filed 7/94) [alone and further in view of specification in order to demonstrate inherency (e.g. of polylysine)] and Stanbro, US

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5,082,627 as applied to claims 4, 5, 7, 9, 10, 12 and 13 above, and further in view of Kornguth et al., US 5,629,213 A.

11. Claims 1-7, 9-11 and 13 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hainfeld et al. US Pat. No. 5,521,289 (5/96: filed 7/94) [alone and further in view of specification in order to demonstrate inherency (e.g. of polylysine)] and Kornguth et al., US 5,629,213 A.

Claim Rejections - 35 USC § 112

12. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

13. Claims 4-7 and 9-15 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. This is a new matter rejection.

The specification as filed does not appear to provide support for the limitation "interparticle spacing", as stated in the claims as currently amended. Applicant must point, with particularity, as to where in the specification support for the claim limitation may be found.

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Double Patenting

14. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

15. Claims 4-7 and 9-15 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-3 of U.S. Patent No. 6,872,971. Although the conflicting claims are not identical, they are not patentably distinct from each other.

This rejection over the new added claims is necessitated by applicant's amendments to the claims. This rejection maintains the reasons of record, as set forth in the previous Office action, in the rejection of claims 1-7 and 9-13. The rejection is copied below for the convenience of the reader.

The patent claims teach devices which employ organized metal (defined in the disclosure to include Ag/Au/Pt/Pd and mixtures: see '971: col 3, lines 25-55) cluster (one dimensional) arrays" which are within the scope of the presently claimed invention: e.g. radii spaced apart @ 0.4 nm-.1.8 nm (vs. @0.7 nm to 1.8nm presently claimed) utilizing "biomolecular scaffold" (DNA/alpha helical forming polypeptides : e.g. see col. 3) which are "electrically isolated from one another" (e.g. formed by aligning in electric field: see col. 15 and/or distance or less than about 5nm); and has a linear increase in current above a threshold in applied voltage (patent claim 3).

The '971 Patent claims in claim 1:

An electronic device that operates at or about room temperature based on the Coulomb blockade effect, comprising: a first cluster comprising a metal cluster core having a radius of between about 0.4 nm

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and about 1.8 nm; and a second such cluster physically spaced apart from the first metal cluster at a distance of less than about 5 nm, where the physical separation between the first and second clusters is maintained by the clusters being coupled to a biomolecular scaffold.

The claims of the '971 Patent are further drawn to the electronic device of claim 1, comprising first and second biomolecular scaffolds, each with coupled clusters, where the first and second scaffolds intersect. The claims of the '971 Patent are further drawn to the electronic device of claim 1, where the device exhibits a linear increase in the number of electrons passing between the first and second clusters as the potential difference between the two clusters is increased above a threshold value.

The '971 Patent defines metal clusters as gold nanoparticle arrays comprising thiol ligands, including 11-mercaptoundecanoic acid (col. 6, Figure 11; and as in instant claim); and defines scaffolds as including polylysine scaffolds (col. 3, lines 52-67); defines devices as comprising substrate a comprising silicon, silicon nitride, ultraflat glass, or gold, ('971 Patent at the abstract, and col. 14, lines 10-20).

Previous Response to Arguments

Applicant argues this rejection is a provisional rejection because instant claims 1-3 have not been allowed. Applicant states that "at the appropriate time" applicant respond to this rejection with a terminal disclaimer, as both the instant application and the '971 Patent are owned by a common assignee

Applicant's arguments, entered 10/13/2005, have been fully considered but they are not persuasive. The instant rejection is not a provisional rejection because the '971 Patent is an issued patent. The rejection is maintained.

Response to Arguments

Applicant argues that because claims 1-3 are canceled, the instant rejection has been rendered moot.

Applicant's arguments, entered 12/12/2006, have been fully considered but they are not persuasive. The instant rejection included claims 1-7 and 9-13. Because applicant has canceled claims 1-3 and added claims 4 and 5, the rejection is proper and maintained.

Conclusion

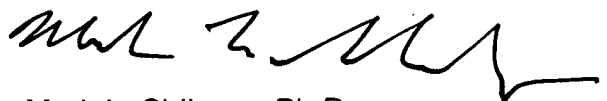
16. Claims 4-7 and 9-15 are rejected.

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17. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Shibuya, whose telephone number is (571) 272-0806. The examiner can normally be reached on M-F, 8:30AM-5:00PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. James Schultz can be reached on (571) 272-0763. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Mark L. Shibuya, Ph.D.
Primary Examiner
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